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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,244

12/12/2005

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EXAMINER

TAMAI, KARL I

ART UNIT

PAPER NUMBER

2834

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/560,244	Applicant(s) KASHIHARA ET AL.	
	Examiner KARL I.E. TAMAI	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: **slot-in portion is smaller than a cross-section of the cross-over portion** (see claim 9).

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the conductor wherein the **slot-in portion is smaller than a cross-section of the cross-over portion** must be shown or the feature canceled from the claim 9; the ends of the coil element connecting in-slot portions of adjacent slots and the distances between the coil elements in the cross over portion being different must be shown or the features cancelled from claim 11. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: ends of the coil elements.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 9 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to

one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Claim 9 recites the limitation of the "slot-in portion is smaller than a cross-section of the cross-over portion". Claim 11 recites the limitation of the "ends of the coil element connecting in-slot portions of adjacent slots and the distances between the coil elements in the cross over portion being different". There is insufficient written support for these limitations in the claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 1, 3, 4, 6-8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 2002/0043886 A1) and Oohashi et al. (US 20020096958).

Claim 1: Fujita et al. discloses an alternator comprising a rotor with a field winding 15, a stator 17 arranged opposed to a rotor 6 with a wound conductor on the core (Fig. 12). Fujita et al. further discloses a case made up of aluminum frame housing 1, 2 supporting the rotor and the stator ([0103]). The stator core is constituted by a core having slots, which hold a coated electrical conductor comprising of a rectangular slot-in portion and a circular cross-over portion ([0103]). Fujita et al. teaches the cross over

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portion embedded in varnish 26 to improve the insulating characteristics, fixing strength, and vibration resistance ([0143]). It is clear the gaps between the adjacent windings is larger than the gap between the long side of the rectangular winding and the side of the slot. Fujita shows the in-slot portions of the coils in all the slots (figure 8). Fujita et al. does not teach the core being laminated or the size of the insulating coating of the two portions of the conductor or a gap in the coating between adjacent conductors or the varnish impregnating both the slot in portions and the crossover portions. Oohashi teaches the stator core is laminated ([0046]) with the cross over portions varnished (functioning as an insulting resin) with at gaps between the winding to provide cooling airflow and increased rigidity (see paragraphs 0059-0063). It is clear the gap between adjacent windings is larger than the long side of the conductor and the slot. Oohashi teaches the varnish (insulating resin) 35 is applied to both the slot in portion to ensure rigidity, high output and low noise ([0075]). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the stator of Fujita with the core laminated, as taught by Fujita because laminated cores reduce eddy current in the core, and with the cross over portion having smaller insulation on the flat portion of the core in the slots because Oohashi teaches additional varnish insulation on the cross over conductors reduces vibration, and with at least one gap between the insulation of adjacent elements to provide cooling air passages, and with the resin 35 in both the slot in portion and the cross over portion to provide low noise and high output, as taught by Oohashi.

Claim 3: Fujita et al. discloses a stator and conductor as in claim 1 above and further discloses that the cross-sectional shape of the slot-in portion of the conductor is rectangular and the long sides are placed in the radial direction of the stator core ([0113]).

Claim 4: Fujita et al. discloses a stator and conductor as in claim 1 above and further discloses that the slot-in portion is disposed on a line in the radial direction (Fig. 3).

Claim 7: Fujita et al. discloses a stator and conductor as in claim 1 above and further discloses that the crossover portion is shielded by a case comprising of aluminum frames (Fig. 1 and [0103]). This is equivalent to the metallic housing as claimed in the instant application.

Claim 8: Fujita et al. discloses a stator and conductor as in claim 1 above and further discloses the charging and discharging air holes formed in the casing.

9. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 20020043886) and Oohashi et al. (US 20020096958), in further in view of Umeda et al. (Umeda)(US 5936326). Fujita and Oohashi teach every aspect of the invention except the rectangular conductor with the longer side being placed in the circumferential direction. Umeda et al. does teach a rectangular conductor being in the radial direction of the stator core and the longer side is in placed in the circumferential direction (Fig. 11). It would be obvious for a person having ordinary skill in the art at the time of the invention to construct the generator of Fujita and Oohashi with the

rectangular conductor with the longer side being placed in the circumferential direction because Umeda teaches that more conductors can be inserted in the stator slots to provide a small sized high power alternator.

10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 20020043886) and Oohashi et al. (US 20020096958), in further in view of Asao et al. (Asao)(US 6281612). Fujita and Oohashi teach every aspect of the invention except the conductor of the slot in portion located in slots closely disposed on a plurality of lines in the radial direction. Asao teaches the conductor of the slot in portion located in slots closely disposed on a plurality of lines in the radial direction to provide a slot factor in the slot (Fig. 11). Asao teaches the slot in portion impregnated with resin to provide an integral structure with the core (col. 7, line 4). It would be obvious for a person having ordinary skill in the art at the time of the invention to construct the generator of Fujita and Oohashi with the conductor of the slot in portion located in slots closely disposed on a plurality of lines in the radial direction to provide a slot factor in the slot, as taught by Asao.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 20020043886) and Oohashi et al. (US 20020096958), in further in view of Kessinger et al. (Kessinger)(US RE38939). Fujita and Oohashi teach every aspect of the invention except the cross section of the slot in portion is smaller than the cross section of the cross over portion. Kessinger teaches the cross section of the slot in

portion is smaller than the cross section of the cross over portion to provide less electrical losses. It would be obvious for a person having ordinary skill in the art at the time of the invention to construct the generator of Fujita and Oohashi with the cross section of the slot in portion is smaller than the cross section of the cross over portion to provide less electrical losses, as taught by Kessinger.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita et al. (US 20020043886) and Oohashi et al. (US 20020096958), in further in view of Kusase (JP 03226251). Fujita and Oohashi teach every aspect of the invention except the distances between the ends of the coil elements in the cross over portion being difference and the ends of the coil elements connecting slot in portions in adjacent slots. Kusase teaches that the distances between the ends of the coil elements are different (between the x, y, and z phases) and the ends of the coil elements (the cross over portion) connected adjacent in slot portions of each of the three phases x, y, and z. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the motor of Fujita and Oohashi with the winding connections of Kusase to reduce magnetic noise and improve cooling.

Response to Arguments

13. Applicant's arguments filed 01/22/2008 have been fully considered but they are not persuasive. Applicant's argument regarding figure 4 showing the cross section of the in slot portion being smaller than the cross over portion is not persuasive because

figure 4 shows a perspective external view of the conductors, not a cross-section of winding. Applicant's argument regarding the 112, first paragraph support for the cross section of the in slot portion being smaller than the cross over portion on page 7 is not persuasive because the specification (page 7-8) refers to the insulation on the cross section not the cross-section itself. The Applicant's argument regarding the claims are moot in view of the new grounds of rejection.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (571) 272 - 2036. The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Darren Schuberg, can be reached at (571) 272 - 2044. The facsimile number for the Group is (571) 273 - 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Karl I Tamai/
PRIMARY PATENT EXAMINER
March 20, 2008